

REMARKS

In response to the above Office Action, claim 1 has been amended to avoid the rejection of the claims under §112, second paragraph and to limit the nonwoven fabric to one "consisting of continuous filaments of cupra-ammonium rayon, with no binding materials." As a result, claims 3 and 4 have been cancelled. Support for the amendments to claim 1 can be found in former claim 3, page 8, lines 22-31, page 12, lines 30-31 and, for example, page 14, lines 27-31. Here it teaches that the filament fiber fabric is obtained by continuously solidifying and regenerating a cupra-ammonium cellulose solution by a wet-type method to produce filaments which are then subjected to an entanglement treatment. This obviously will produce continuous filaments and a fabric without binding materials.

The claimed continuous filament of cupra-ammonium rayon is entirely different from "a short fiber." Therefore, a nonwoven fabric consisting of continuous filaments makes the amount of micro-matters falling-off from the fabric remarkably less in comparison with a nonwoven fabric formed of short fibers.

The problem to be solved by the present invention is to provide an industrial wiper suitable for use in a clean room of the electronic products industry or the pharmaceutical products industry, both of which require a high degree of cleanness.

The present invention is characterized by a wiper of a nonwoven fabric "consisting of continuous filaments of cupra-ammonium rayon, with no binding materials, which are entangled with each other by a high-pressure water jet stream."

Since the nonwoven fabric consists of continuous filaments of cupra-ammonium rayon, the amount of micro-matters falling off from the fabric are minimal, the wiper is

excellent in its resistance to an organic solvent (especially to acetone) and in water absorption, and thus the wiper is suitable for use in a clean room.

In the Office Action, the Examiner rejected claim 1 under 35 U.S.C. §112, second paragraph for the recitation of the phrase "water integratable." This phrase has been deleted from amended claim 1, so the rejection is now moot.

The Examiner also rejected claims 1-4 under 35 U.S.C. §103(a) for being obvious over U.S. Patent No. 6,013,587 to Truong. The claims were also rejected under 35 U.S.C. §102(e) for being anticipated by, or alternatively, under 35 U.S.C. §103(a) for being obvious over U.S. Publication No. 2003/0100240 to Takai. They were also rejected for being obvious over a newly cited reference to Kwok (U.S. Patent No. 5,093,190) in view of Truong. The withdrawal of the rejection of the claims for being anticipated by Suzuki is appreciated. However, it is believed amended claim 1 and claim 2 dependent therefrom are patentable over the above cited references for the following reasons.

Truong relates to nonwoven articles having high durability and absorbent characteristics, wherein a nonwoven web is comprised of organic fibers of polymers having a plurality of pendant hydroxyl groups and a binder. See abstract, paragraph (a). While the articles can also contain cellulosic-type fibers such as cupra-ammonium rayon, these fibers are only a "minor portion" of the fibers of the web. See column 3, lines 39-43; column 5, line 65 to column 6, line 13 and column 8, lines 8 and 9.

In addition, the nonwoven web of Truong is formed of short fibers having a length of about 0.5 to 10 cm (see col. 6, line 23), and the thickness of the nonwoven web may be achieved by a carding/crosslapping operation (see col. 6, lines 34 to 35). As

understood from the above description, it is clear that the nonwoven web of Truong is formed of short fibers.

On the other hand, the nonwoven fabric of the present invention consists of continuous filaments of cupra-ammonium rayon and does not contain any binder. Thus the fabric of the invention differs from Truong in that 1) it consists only of filaments of cupra-ammonium rayon, not just a "minor" portion thereof, 2) the filaments are continuous, not "short" fibers and 3) it does not contain any binder. Thus the structure of the claimed fabric of the present invention is quite different from that of Truong.

Moreover, the problems to be solved in Truong are to improve the durability and absorption of the nonwoven articles, whereas the problem to be solved in the present invention is to provide a wiper having a high level of cleaning properties as described above.

Therefore, the present invention is quite different from Truong both in the field of use and the problems to be solved, so it is understandable why the structures are so different.

As a result of the filaments being continuous and not of short length, as in Truong, the falling-off of fiber is minimal and excessive entanglement is avoided.

Further, as a result of using no binder in the nonwoven fabric of the present invention, it is highly resistant to organic solvents, such as acetone. This is an important property for use of the fabric as a wiper in a clean room. In contrast, Truong uses a binder in the fabric, so it would have a low resistance to organic solvents. Thus the claimed amount of material being dissolvable in acetone of 340 mg/kg or less could not be achieved with the fabric of Truong. This is because the nonwoven web of Truong contains polymers having a plurality of pendant hydroxyl groups and a binder

that is liable to be dissolved in acetone as described on page 3, lines 32-37 of the specification.

Accordingly, it is not seen how the fabric of claim 1 can be considered to be obvious over the fabric of Truong. Its withdrawal as a ground of rejection of the claims under §103(a) is therefore requested.

Takai relates to a water disintegratable sheet the fibers of which are hydroentangled about each other, comprising at least one kind of primary fibers having a fiber length of at most 10 mm and bast/leaf fibers having a fiber length of at most 10 mm. While the primary fibers of Takai may be of cupra-ammonium rayon (paragraphs [0055 and 0056], the fabric also includes other fibers and both are of a very short length.

The problem to be solved in Takai is to provide a water disintegratable sheet, the fibers of which can be dispersed in a large amount of water for sanitary use. On the other hand, the problem to be solved in the present invention is to provide a wiper having a high level of cleaning properties making it suitable for use in a clean room.

Thus, the present invention is quite different from Takai both in the field of use and the problems to be solved and, consequently, the claimed structure of the fabric and that of Takai are also quite different.

In contrast to the above-noted structure of Takai, the wiper of the present invention is of a nonwoven fabric formed by entangling fibers consisting of continuous filaments of cupra-ammonium rayon, with each other by a high-pressure water jet stream, and the nonwoven fabric does not contain a binder polymer.

Thus the fabric of the invention differs from Takai, like Truong, in that 1) it consists only of filaments of cupra-ammonium rayon, not just a part of it, 2) the

filaments are continuous, not filaments having a maximum length of 10 mm, and 3) it does not contain any binder.

This permits the fabric to have the claimed amount of micro-matters of 100µm long or more falling-off, which is an index of cleaning degree and be organic solvent resistant, especially a dissolving property into acetone.

It is believed that the water disintegratable sheet of Takai would generate an excessively large amount of fibers falling-off from the sheet due to the short length of the fibers, and would not be organic solvent resistant. Therefore, the sheet of Takai could not satisfy the level of cleanness defined by the present invention.

Accordingly, it is not seen how the fabric of claim 1 can be considered to be anticipated by or be obvious over the fabric of Takai. Its withdrawal as a ground of rejection of the claims under §102(e) and §103(a) is therefore requested.

Kwok relates to a spunlaced fabric comprising acrylic/polyester fabrics. The spunlaced fabric is good in cleanness and is produced by entangling fibers with each other by a low-energy water stream.

However, the spunlaced fabric of Kwok is entirely different in the fiber material from the nonwoven fabric of the present invention which consists solely of continuous filaments of cupra-ammonium rayon.

Truong may show fibers of cupra-ammonium rayon, but these are not only used in combination with organic fibers, but are of short length. Thus it is not seen how they could be substituted for the acrylic fibers of Kwok, but even if they were, because of their short length, they would not provide a fabric material having the claimed minimal amount of micro-matter falling-off therefrom enjoyed by the fabric of the present invention.

Accordingly, it is not seen how the claimed fabric can be considered obvious over the combination of Kwok and Truong. Its withdrawal as a ground of rejection of the claims is therefore requested.

It is believed claims 1 and 2 are in condition for allowance.

An RCE is being filed with this Reply to enable the Examiner to consider the amended claims.

In view of the foregoing remarks, Applicants submit that this claimed invention, as amended, is neither anticipated nor rendered obvious in view of the prior art references cited against this application. Applicants therefore request the entry of this Amendment, the Examiner's reconsideration and reexamination of the application, and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to Deposit Account 06-0916.

Respectfully submitted,

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